

# **P4 Socket 478 Motherboard**

## **BC875PLG**

**User's Manual**

<http://www.bcmcom.com>

## **FCC Compliance Statement**

This equipment has been tested and found to comply with limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna
2. Move the equipment away from the receiver
3. Plug the equipment into an outlet on a circuit different from that to which the receiver is connected
4. Consult the dealer or an experienced radio/television technician for additional suggestions

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

This device complies with Part 15 of the FCC Rules. Operation is subjected to the following two conditions

1. This device may not cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

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## **1: Introduction**

The BC875PLG motherboard is a high-performance workstation board that supports the Intel® Pentium 4® processor. The motherboard accommodates Dual Channel 200/266/333/400 MHz DDR SDRAM using four DIMM memory sockets. Six 32-bit PCI slots and one ISA slot provide expansion. The BC875PLG motherboard uses the Intel® 875P chipset to integrate all system control functions.

Features of this motherboard include support of:

- Intel® Pentium® 4 processor with support for Hyper-Threading Technology
- 800/533 MHz system bus
- Up to 4GB Dual Channel DDR400 (PC3200) SDRAM
- Six 32-bit PCI/33 MHz slots & one ISA slot
- Onboard Accelerated Graphics Port (AGP Pro/8X/4X)
- Intel® 82547EI GbE LAN & Intel® 82562ET 10/100 LAN integrated
- Firewire (IEEE-1394) built-in
- Atmel AT97SC3201 security module integrated (option)
- Four USB 2.0 external ports on rear panel (stacked)
- Offers four USB 2.0 ports for the front panel

For a complete list of specifications, see Chapter 6, Specifications.

## **About This Manual**

This manual's six chapters cover the following topics:

1. Introduction provides a basic introduction to the motherboard and package contents.
2. Hardware Configuration, describes the motherboard layout, components, and configuration
3. Motherboard Installation, explains basic motherboard installation procedures.
4. BIOS Setup, describes the settings of the BIOS.
5. Drivers and Utilities, explains how to use the bundled software drivers and utilities.
6. Specifications, lists the motherboard's technical specifications.

## **Package Contents**

The motherboard package contains the following items:

1. BC875PLG motherboard
2. IDE cables (40Pin 80 wire)
3. Floppy Drive cable (34Pin)
4. Rear I/O Shield
5. Two SATA cables and one power core
6. Driver, Utility & Manual CD
7. Quick Start Guide

Remove the motherboard from its anti-static bag and place it on a grounded or anti-static surface (component side up). Inspect the motherboard; if any items are damaged or missing, contact your vendor immediately.

## **2- 2: Hardware Configuration**

This chapter describes the motherboard layout and shows the location, function, and configuration of key components, including sockets, slots, connectors and jumpers as well as the external I/O ports. Before installing this motherboard read the following pages carefully for location and function of these items.

### **Components**

The motherboard provides sockets, slots, and connectors for the installation of the CPU, memory, power supply, and PCI expansion cards.

### **Connectors**

The motherboard's connectors let you attach IDE and FDD drives, CPU fan/heatsink, IR module, audio devices, and front panel features such as LEDs, speaker, and power switch.

### **Jumpers**

The motherboard's jumpers provide information to the operating system about installed options and system settings.

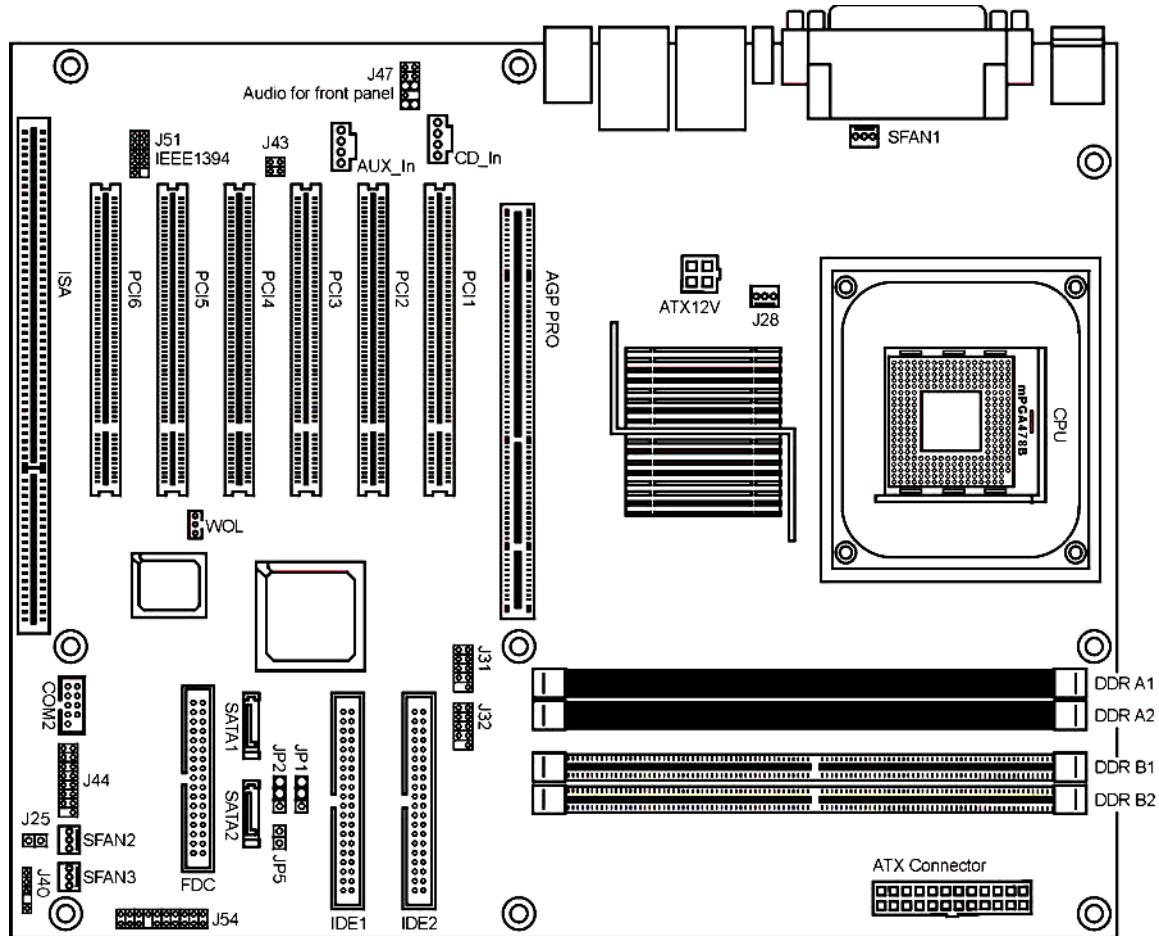
### **External I/O Ports**

The external Input/Output ports let you connect external devices.

## Motherboard Layout

The location of motherboard components is shown below.

### BC875PLG



This picture represents the latest board revision available at the time of publishing.  
The board you receive may or may not look exactly like the above picture.  
BCM reserves the right to make changes without notice to this product.

These components, connectors and jumpers are located in the motherboard layout graphic on the facing page.

### **Component Function**

<b>CPU</b>	mPGA478 CPU socket
<b>AGP 8X Pro</b>	Accelerated Graphics Port
<b>DDR A1, A2, B1, B2</b>	DIMM sockets for DDR SDRAM
<b>PCI1~ PCI6</b>	32_bit PCI expansion slots
<b>ISA</b>	ISA expansion slot

### **Connectors Function**

<b>J51</b>	Firewire internal connector
<b>J24</b>	Connectors for power supply
<b>J23</b>	ATX 12V power connector
<b>J54</b>	Front panel feature connector
<b>J25</b>	Power Switch
<b>J31, J32</b>	Internal USB connector
<b>J28</b>	CPU cooling fan power connector
<b>J35</b>	Wake on LAN
<b>J44</b>	Game port connector
<b>J40</b>	IR Port module connectors
<b>J48</b>	AUX-auxiliary audio-in connector
<b>J45</b>	CD-ROM drive audio-in connector
<b>J34</b>	COM2 port bracket connector
<b>J30</b>	Floppy disk drive connector
<b>J21, J22</b>	IDE drive connectors
<b>J11, J12</b>	Serial ATA drive connectors
<b>J39, J27, J29</b>	System cooling fan connectors
<b>J47</b>	Audio for front panel
<b>J43</b>	Internal S/PDIF out connector
<b>JP5</b>	Chassis Intrusion Connector

### **Jumpers Function**

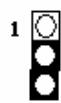
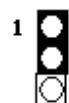
<b>JP1</b>	BIOS flash protect
<b>JP2</b>	Clear CMOS

This jumper switch, JP2, clears the CMOS Setup configuration that is stored in the real-time clock's CMOS memory. If configuration becomes corrupted, or if the CMOS settings are changed to an unsuitable configuration, the motherboard may not work properly.

JP2 allow you to delete the configuration data stored in CMOS memory and reset the CMOS to the Optimized Defaults.

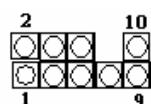
Follow the procedure below to clear CMOS memory.

1. Turn off and unplug the system and remove the system housing cover.
2. Set JP2 to the Clear CMOS position by placing the jumper cap over pins 2 and 3 for one minute.
3. Return the jumper cap to the Normal setting, pins 1 and 2.
4. Replace the system housing cover, plug in the system and power on.
5. Run the CMOS Setup Utility and load the Optimized Defaults. Make any custom settings you require. (See Chapter 4, BIOS Settings.)
6. Save the settings as you exit the program and restart your computer.



### J47: Audio for Front Panel

This jumper, J47, allows users to switch audio function to the front panel if front panel is installed.



Audio to Front Panel  
Pin Assignment

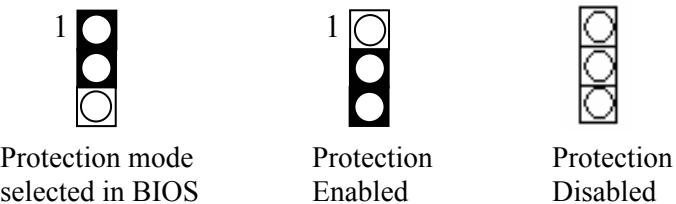
- |       |                |
|-------|----------------|
| 2:    | GND            |
| 3:    | MIC            |
| 5-6:  | Line Out Left  |
| 9-10: | Line Out Right |

#### NOTE

*When the jumpers are removed and this connector is used for front panel audio, the back panel audio line out and mic in connectors are disabled*

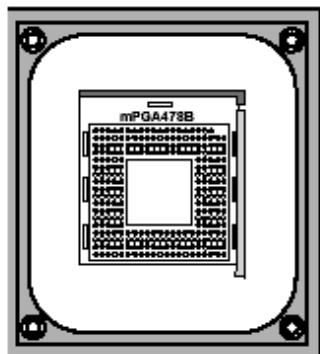
## JP1: BIOS Flash Protect

This jumper protects the system from unnecessary updating or flashing of BIOS. It secures the BIOS; therefore prevents accidental overwriting of the data stored in Flash memory.



## CPU Socket & Cooling Fan / Heatsink Frame

The mPGA478B CPU socket supports a 478-pin Intel Pentium 4 processor. The Pentium 4 CPU requires a cooling fan/heatsink, which attaches to the board using a retention mechanism mounting frame. See the section on installing the CPU in Chapter 3.



*The mPGA478B CPU socket is located within a cooling fan/heatsink frame.*

## AGP Pro 8X 1.5V Slot

The AGP slot is for the exclusive use of high-speed AGP video display cards. It is AGP 3.0 compliant. This AGP slot supports AGP4X and AGP8X card. This slot only supports 1.5V devices. Do not use a 3.3V AGP card with this motherboard. The AGP slot is extended to include support for AGP Pro cards using up to 110 watts of power.

Important:  
For AGP 4X, 8X, and  
Pro 1.5V cards only.  
Do not use 3.3V cards  
in this slot.

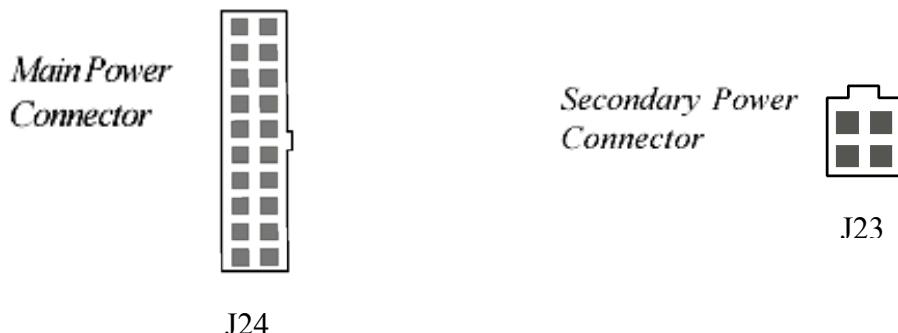


*AGP Pro 8X Slot*

## ATX12V Power Connectors

The two power connectors let you attach two leads from an ATX12V power supply to the motherboard. The ATX12V standard requires a 20-pin ATX connector plus a 4-pin ATX12V connector. The two power connectors on this motherboard can accommodate either standard.

For an ATX12V power supply insert the 20-pin lead of the ATX12V into the first 20 holes of the power connector leaving the last four empty, and the 4-pin ATX12V lead into the first 4 holes on the secondary power connector, also leaving the last four holes empty. See the connector diagrams below.



### Note:

1. Use only ATX12V-compliant power supplies with the board. ATX12V power supplies have an additional power lead that provides required supplemental power for the processor. Always connect the 20-pin and 4-pin leads of ATX12V power supply to the corresponding connectors, otherwise the board will not boot.
2. Do not use a standard ATX power supply. The board will not boot with a standard ATX power supply.

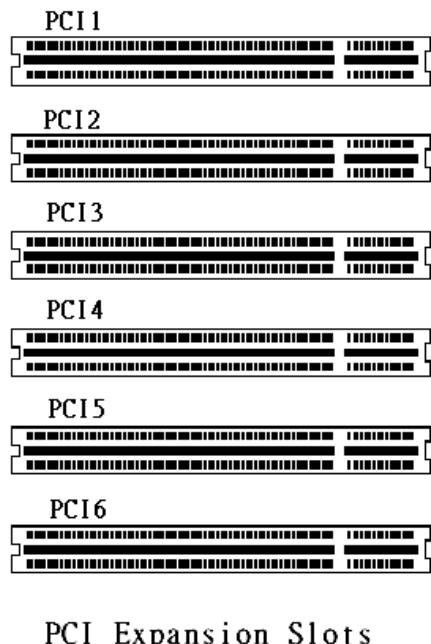
## **System Memory Sockets**

These DIMM system memory sockets support 400MHz (PC3200) or 333MHz (PC2700) or 266MHz (PC2100) DDR SDRAM system memory modules. See the section on installing memory in Chapter 3.



## **PCI Expansion Slots**

The PCI expansion slots let you install additional system hardware via add-on cards. There are five 32-bit, 33MHz slots that are compliant with PCI 2.1/2.2 on this motherboard. See the section on installing internal peripherals in Chapter 3.



**PCI Expansion Slots**

## **ISA Expansion Slot**

There is one 16-bit, 10MHz ISA slot that lets you install additional system hardware via add-on cards. See the section on installing internal peripherals in Chapter 3.



*ISA*

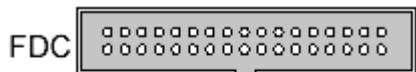
NOTE1: Due to space limitation in chassis, either PCI6 or ISA can be used.

## **Drive Connectors**

There are drive connectors on the motherboard for connecting IDE and floppy disk drives.

### **J30: Floppy Disk Drive Connector**

The connector J30 lets you attach one floppy disk drive to the motherboard using a standard FDD ribbon cable.

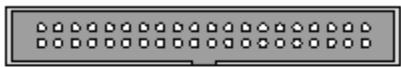


*Floppy Drive Connector*

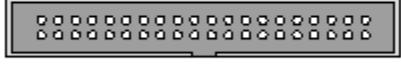
### **J21, J22: IDE Drive Connectors**

The two IDE drive connectors are marked IDE1, the primary channel, and IDE2, the secondary channel. Each connector supports two drives, a Master and a Slave.

**IDE1**



**IDE2**



*IDE Drive Connectors*

### **J34: COM2 Port Bracket Connector**

The COM2 Port Bracket Connector lets you add an additional serial port, to which you can connect peripherals such as serial modems and pointing devices.

The COM2 port is configured in the CMOS Setup Utility, see Chapter 4.



*COM2 Port Bracket Connector*

### **J11, J12: Serial ATA Drive Connectors**

There are two Serial ATA connectors on the motherboard. Each connector supports one drive, which connects to the motherboard with a Serial ATA cable. These two Serial ATA connectors also support RAID 0 and RAID 1. The motherboard comes with two Serial ATA cables and one power core for user's convenience.



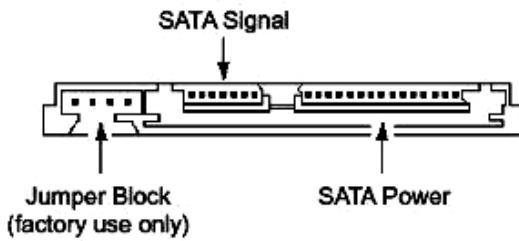
Serial ATA Drive Connectors

The BC875PLG is manufactured using the Intel® 875P chipset, which features the Intel® 82801EB I/O Controller Hub (ICH5R). The I/O Controller Hub 5 supports Serial ATA transfer speeds of 150MBps (Megabytes per second).

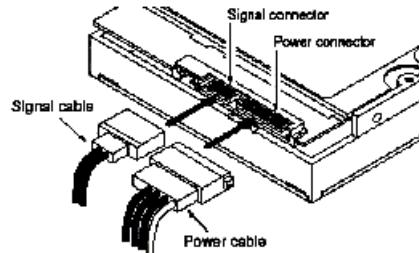
The ICH5-R's Serial ATA controller offers two independent Serial ATA ports with a theoretical maximum transfer rate of 150 MB/s per port. One device can be installed on each port for a maximum of two Serial ATA devices. A point-to-point interface is used for host to device connections, unlike Parallel IDE which supports a master/slave configuration and two devices per channel. For compatibility, the underlying Serial ATA functionality is transparent to the operating system. The Serial ATA controller can operate in both legacy and native modes. In legacy mode, standard IDE I/O and IRQ resources are assigned (IRQ 14 and 15). In Native mode, standard PCI resource steering is used. Native mode is the preferred mode for configurations using the Windows XP or Windows 2000 operating systems.

NOTE1: Many Serial ATA drives use new low-voltage power connectors and require adaptors or power supplies equipped with low-voltage power connectors. For more information, see: <http://www.serialata.org/>

NOTE2: Currently RAID 1 is not supported, but will be ready after Q3, 2003



**Serial ATA connectors**



**SATA cabling with separate power and signal attachments**

**More Information about S-ATA HDD:**

Serial ATA drives are designed for easy installation with no jumpers, terminators, or other settings. It is not necessary to set any jumpers on this drive for proper operation. The jumper block adjacent to the signal connector is for factory use only.

### J45, J48: Audio Connectors

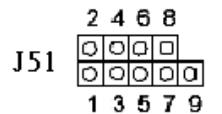
These two connectors, CD-IN and AUX-IN, let you attach audio-in cables from internal peripherals, such as a CD-ROM or DVD-ROM drive. The connectors provide an audio input connection between a device and the integrated audio subsystem.



*CD-IN, AUX-IN Audio Connectors*

### J51

The connector, J51, provide onboard support for devices using the IEEE-1394 standard. The IEEE-1394 standard provides high speed digital interface for audio/video appliances such as digital video camcorders, digital television, storage peripherals and other PC portable devices.



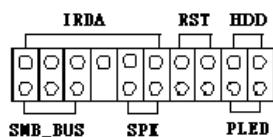
Pin	Assign	Pin	Assign
1:	TPB1+	2:	TPB1-
3:	GND	4:	GND
5:	TPA1+	6:	TPA1-
7:	+12V	8:	+12V
9:	NC	10:	NC

*Connector Pin Assignments*

## J54: Front Panel Connector

This connector, J54, connects the following system housing front panel features:

- Reset Switch (RST in diagram)
- HDD LED (HDD in diagram)
- Power LED (PLED in diagram)
- System Management Bus (SMB\_BUS in diagram)
- Housing-mounted Speaker (SPK in diagram)
- IRDA connector (IRDA in diagram)

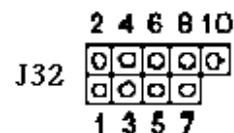
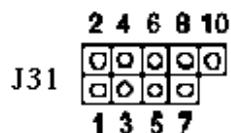


*Front Panel Connector  
Pin Assignment*

## J25: Power Switch

## J31, J32: Internal USB Connector

These connectors, J31 and J32, let you attach internal USB devices.

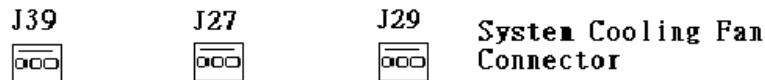
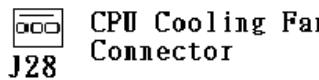


Pin	Assignment	Pin	Assignment	Pin	Assignment	Pin	Assignment
1:	+5V	2:	+5V	1:	+5V	2:	+5V
3:	USB DATA 6-	4:	USB DATA 5-	3:	USB DATA 8-	4:	USB DATA 7-
5:	USB DATA 6+	6:	USB DATA 5+	5:	USB DATA 8+	6:	USB DATA 7+
7:	GND	8:	GND	7:	GND	8:	GND
9:	NC	10:	NC	9:	NC	10:	NC

*Connector Pin Assignments*

## **J28, J39, J27, J29: CPU & System Fan Connectors**

These 3-pin connectors provide power to the CPU cooling fan (J7), to the System cooling fans (J39, J27, J29). These connectors all support fan speed monitoring. A temperature monitor detects the CPU and internal system temperatures. You can set a system shutdown temperature in the PC Health section of the CMOS Setup Utility.



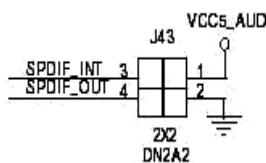
## **WOL: Wake On LAN**

This connector, WOL, lets you attach a managed network adapter to the motherboard via a Wake-on-LAN cable. When the system is off, the managed network adapter uses an alternate power source to monitor the network. If it receives a wake-up packet from the server the system is remotely and automatically powered up.



Pin	Assignment
1:	5VSB
2:	GND
3:	LAN_Wake

## **J43: S/PDIF**



Pin	Assignment
1	VCC
2	GND
3	SPDIF_IN
4	SPDIF_OUT

## J40: Infrared Connectors

This connector, J40 (IR) lets you attach an Infrared (IR) port module. The connectors support both IrDA and ASKIR infrared port modules. Review the module's instructions for installation information. To use this feature you must configure the motherboard using the CMOS Setup Utility, see the Integrated Peripherals section of Chapter 4.



Pin	Assignment
1:	+5V
2:	NC
3:	IR_RX
4:	GND
5:	IR_TX

## J44: Game port connector

This connector, J44, is a standard 15-pin gameport connector for attaching game controlling devices.



*Gameport Connector*

## J14: Chassis Intrusion connector

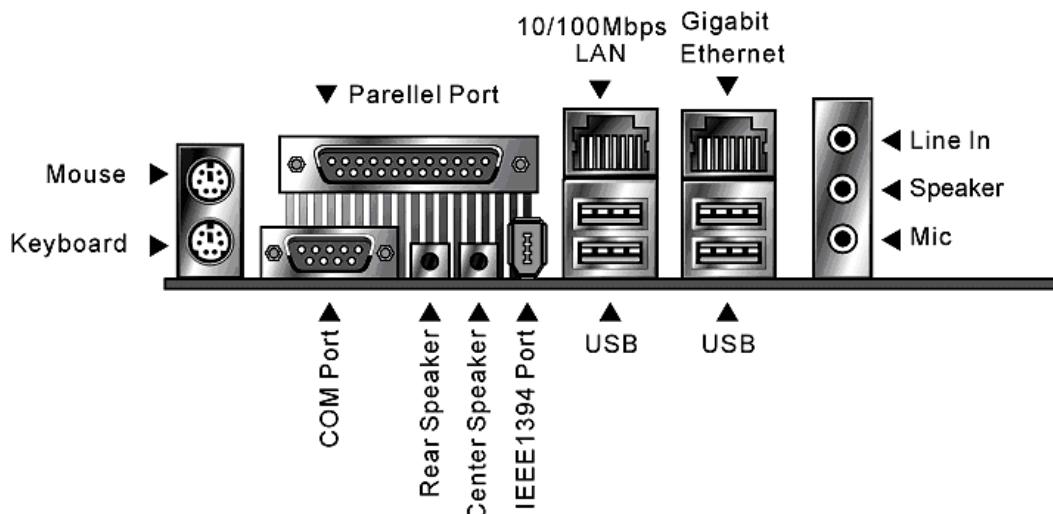
The hardware monitor subsystem supports a chassis security feature that detects the chassis cover. When the cover is removed, a signal is sent to the hardware monitor component. The chassis intrusion circuit is powered by the system's power supply when the system is connected to an AC power or by the onboard battery when it is not.



Connect the chassis intrusion sensor cable from the chassis to J14. To disable this function, place a jumper cap over J14.

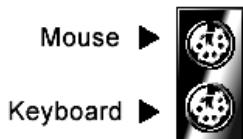
## Rear Panel and I/O Connector

On the rear panel of the board there are several external Input/ Ouput ports. These ports are color coded for easy identification.



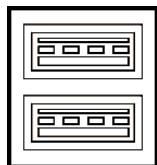
## PS/2 Ports

The PS/2 ports are for a system keyboard and mouse or other tracking device. It is recommended that you do not plug or unplug devices when the system is on.



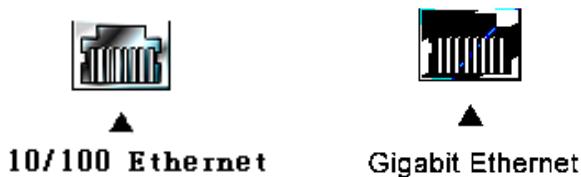
## **USB Ports**

There are four high-speed USB 2.0 ports, USB 0 and USB 1, for connecting either USB 1.1 or 2.0 devices to the system. These ports are for “Type A” USB cable connectors. It does not matter if the system is on when you connect or disconnect USB devices. See the graphic below.



## **Gigabit Ethernet Port & 10/100Mbps Ethernet Port**

Gigabit Ethernet Port and 10/100 Ethernet Port are RJ-45 connectors for standard Cat 5 LAN cabling. The connector attaches to the onboard Intel Kenai-II CSA Gigabit Ethernet LAN controller and Intel 82562ET 10/100 LAN controller respectively. It does not matter if the system is on when connecting or disconnecting a LAN cable.



## **COM Serial Port**

The COM Serial port has a 9-pin connector and can operate at speeds up to 115,200bps. Do not connect or disconnect a serial port when the system is turned on.



## **Parallel Port**

The Parallel port connects the system to devices that have a parallel interface. This port is generally used to connect a printer to the system.

### **▼ Parallel Port**



## **IEEE-1394 Port**

Provides a single plug-and-play connection on which up to 63 devices can be attached with data transfer speeds up to 400Mbps.



## **Audio Jacks**

The audio jacks are for connecting external audio devices to the onboard audio subsystem.

The three audio jacks are:

**1. Line In:**

Provides audio input connector for an external audio source.

**2. Speaker:**

Offers output to two stereo speakers.

**3. Mic:**

This jack is for plugging in a computer microphone.



◀ Line In

◀ Speaker

◀ Mic

## **6-Channel Audio Jacks**

6-Channel audio jacks provide Rear and Center channel/Subwoofer connections including an S/PDIF connector. These external ports include jacks for a 5.1 speaker system's Rear and Center channels and the Subwoofer. One jack is for the Left and Right rear speakers and the other is for Center channel and Subwoofer.

**6-Channel Audio Jacks:**

Rear (Left/Right) and  
Center/Subwoofer chan-  
nel jacks.



Rear Speaker

Rear (L&R), Center/Subwoofer

Note:

Front (L&R) speakers connect to  
the Line Out jack.

## **3: Motherboard Installation**

This chapter describes preparing and installing the motherboard, as well as installing and connecting other components. Please review each of the following procedures before installing the motherboard.

### **Before You Install this Motherboard**

Before placing and fastening the motherboard into a case you must first install a CPU and system memory modules. Please read the sections below and follow the instructions carefully.

#### **Installing a CPU**

The BC875PLG motherboard supports the Intel Pentium 4 processor. You must install both the Intel Pentium 4 and its cooling assembly carefully and in accordance with the procedures below. If you fail to follow these procedures, it could result in either improper operation or damage to the CPU or motherboard. To install an Intel Pentium 4 processor on this motherboard you need to do the following:

1. Install a Pentium 4 processor in the mPGA478 socket.
2. Install the Heatsink/ Retention Mechanism

In addition to the following instructions, please review the instructions that come with your boxed Intel Pentium 4.

## Selecting a Processor

This motherboard supports all Intel Pentium 4 processors. The motherboard's BIOS automatically detect the required settings and configure the CMOS Setup Utility.

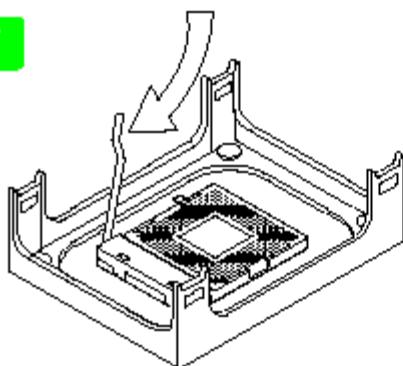
## Installing the Processor

It is important to review all of the instructions before beginning the installation procedure. Carefully handle the processor by its edges, and take all precautions against electrostatic discharge. The boxed Intel Pentium 4 processor comes with a Heatsink and Thermal Interface Material applicator. Non-boxed processors follow the same procedures, but the accessories may have a different appearance.

The following illustrations are a generic representation and may not show the components' exact appearance.

1. Unlock the socket by pressing the lever sideways, then lift it up to a vertical angle.

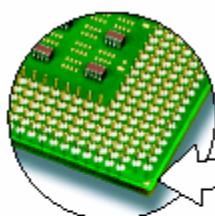
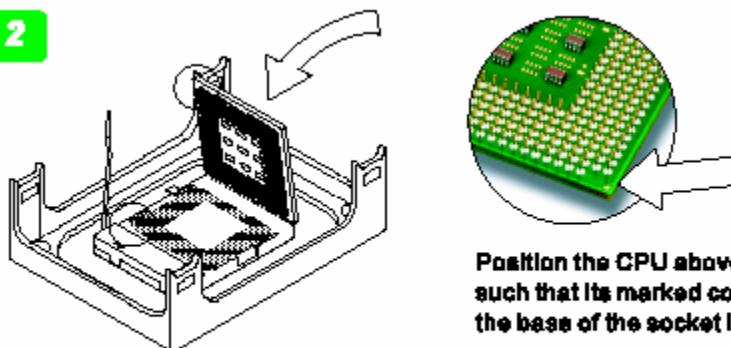
### Step 1



**Unlock the socket by pressing the lever sideways, then lift it up to a vertical angle**

2. Position the CPU above the socket such that its marked corner matches the base of the socket lever.

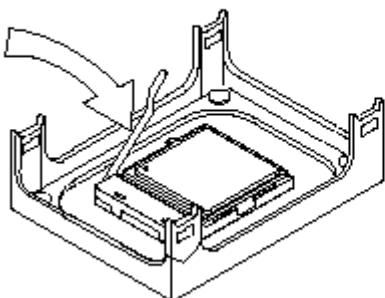
**Step 2**



**Position the CPU above the socket  
such that its marked corner matches  
the base of the socket lever.**

3. Press it firmly on the socket while you push down the socket lever to secure the CPU.

**Step 3**



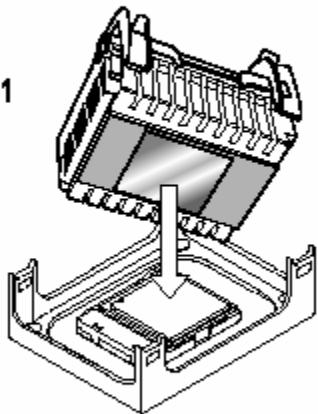
**Press it firmly on the socket while you  
push down the socket lever to secure  
the CPU.**

4. After installing the CPU you may need to apply the Thermal Interface Material (TIM) to the top of the installed CPU (Fig. 2). The TIM is supplied in an applicator with the boxed Pentium 4 processors. The TIM secures the Fan/Heatsink to the CPU. However, if the Fan/Heatsink already has a patch of TIM on its underside, you won't need to apply additional TIM to the CPU (Fig. 1).

#### Step 4

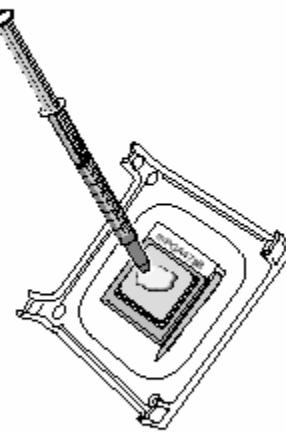
The heatsink may have thermal interface material attached to the bottom as shown in Fig.1, or you may need to apply the thermal interface material using a syringe as shown in Fig.2.

Fig.1



**Be careful not to damage the thermal interface material.**

Fig.2



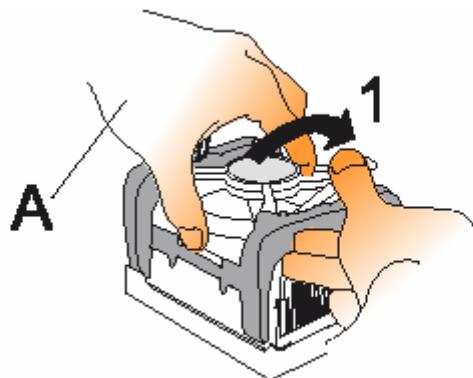
**Using the enclosed syringe and apply all of the thermal interface material to the top of the processor**

## Installing the Fan/ Heatsink

To install the Fan/Heatsink assembly:

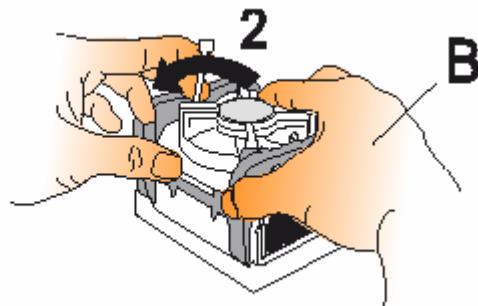
5. When installing the Fan/Heatsink and clip assembly it is important to make sure the Fan/Heatsink **does not** rotate or twist on the processor. Securing the Fan/ Heatsink while closing the clip lever will ensure the thermal interface material (TIM) is not damaged and the processor will operate correctly. The TIM is attached to the heatsink.

**Step 5**



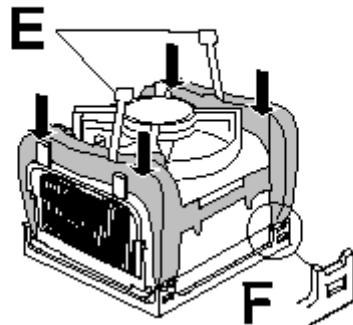
6. Make sure to close the clip levers one at a time. Close the clip lever (1), while holding the top-side of the Fan/Heatsink with your other hand (A). Close the clip lever (2) while holding the top-side of the Fan/ Heatsink with your other hand (B).

**Step 6**



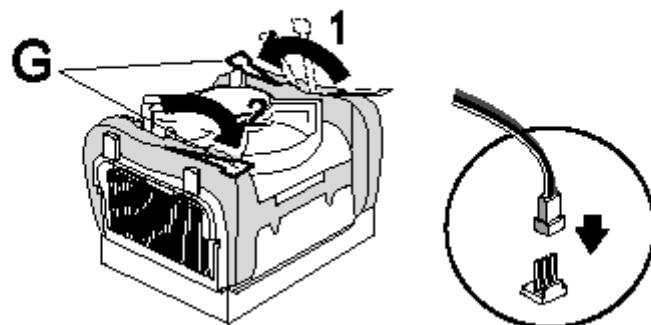
7. Align the Heatsink and clip assembly with the Retention Mechanism and place it on the processor. The Heatsink is symmetrical.

### Step 7



8. With the clip levers in the up position (E), push down on all four clip frame corners to secure to the Retention Mechanism hooks (F). Close the clip levers (G). The levers require force to be completely closed. Connect the processor fan cable connector to the motherboard header.

### Step 8





## Installing System Memory

### Memory Specifications

The BC875PLG motherboard provides four DIMM sockets that support DDR SDRAM.

Memory configuration options are:

1. Supports 128MB, 256MB, 512MB, and 1GB modules, Maximum 4GB total system memory
2. 400MHz PC3200 or 333MHz PC2700 or 266MHz PC2100 Unbuffered DDR SDRAM
3. Dual Channel Modules and the same speed provide better performance.

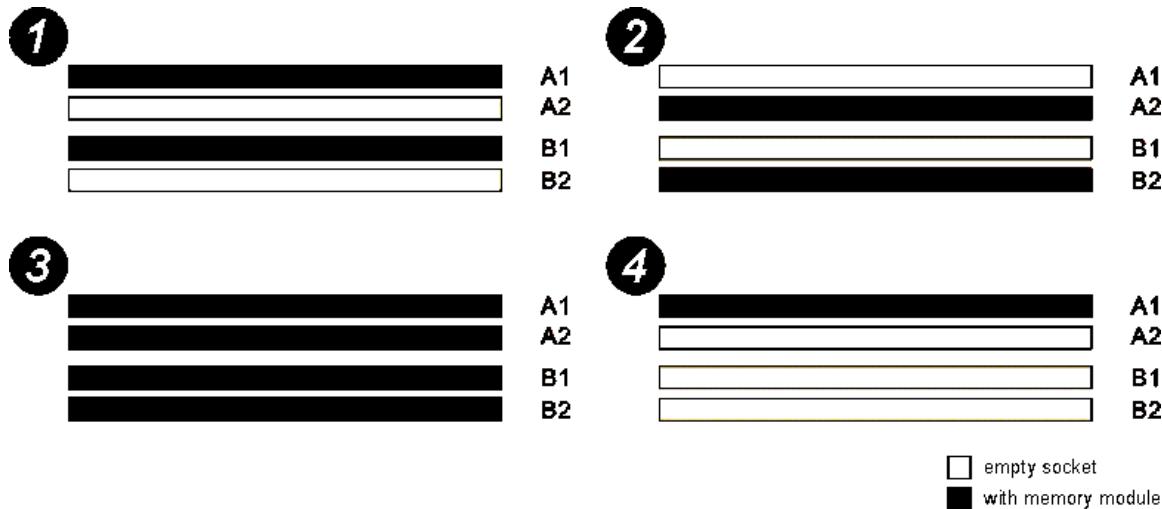
**Note1:** Installing two or more memory modules is recommended for this motherboard. When installing two modules, you must first fill the sockets A1 and B1 or A2 and B2.

**(One Black and One Red DIMM socket)**

**Note2:** Modules should all be the same manufacture, type, model and capacity.

**Note3:** The memory configurations shown here are the only ones allowed. You can install only 1, 2 or 4 modules.

**Note4:** It is not recommended to install 3 memory modules on the system.



You can install the single memory module on any DIMM socket..

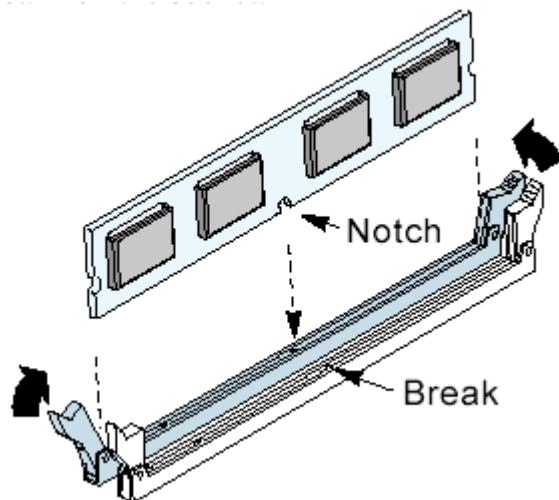
## Installing Memory Modules

To install a memory module, you insert a module into its socket and secure it with the socket retaining arms. The modules are notched so that you cannot insert them incorrectly. The BIOS recognizes the installed memory and configures the CMOS Setup Utility automatically.

**Note:** It is recommended that you install at least two memory modules, beginning in sockets DIMMA1 and DIMMB1.

To install memory modules:

1. Unlock a DIMM socket by pressing the retaining clips outward.
2. Align the “notch” on the memory module to the “break” on the socket.



3. Firmly insert the module into the socket until the retaining clips snap back into place and the module is properly seated.
4. Make sure the memory module is locked on the socket with both retaining clips.

## **Installing the Motherboard in the Chassis**

After installing the CPU and memory modules, you can install the motherboard in the system housing. There are many system housing designs and you should consult your system housing documentation for specific installation information.

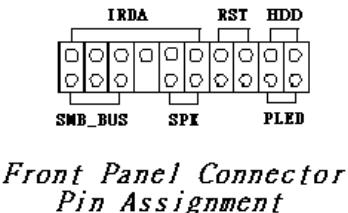
### **Installing the Motherboard**

To install the motherboard into the chassis:

1. Review the housing documentation and prepare the required mounting hardware.
2. Identify the mounting holes on the board and confirm that the housing standoffs are suitably placed.
3. Install the included rear I/O panel shield in the housing's I/O panel opening, matching the ports on the board.
4. Insert the board in the housing and align the mounting holes to the standoffs on the housing's motherboard mounting plate. Check to make sure all rear I/O ports are aligned with the openings in the I/O panel shield.
5. Attach the board to the housing by inserting mounting screws in all the holes and tightening these screws using a Philips head screwdriver.

## Connecting Front Panel Components

After installing the motherboard in the system housing, you should connect the front panel components to the Front Panel Connector, J54. Check the figure below for pin assignments.



## Completing System Configuration

After installing the motherboard in the system housing, you can connect or install the internal devices you need to complete the system. This will include attaching disk drives and connecting housing power supply connectors. After replacing the system housing cover, you can connect external peripherals such as a monitor, a keyboard, and a pointing device.

Once you have completed final hardware installation, you can configure the CMOS Setup Utility and Drivers - see the following chapters - and install operation system and support software - see related documentation.

## **4: BIOS Setup**

After you have installed the motherboard and assembled the system hardware, you can power up the system. The motherboard uses the most recent Award BIOS CMOS chip. The ROM setup instructions for configuring the motherboard's BIOS (Basic Input Output System) are contained on this chip. The CMOS Setup program lets you set system parameters, which are stored in nonvolatile CMOS RAM. This information is retained by battery backup when the system is powered off. The value stored in the CMOS configures the system each time the system is powered on.

### **Running the CMOS Setup Utility**

The CMOS Setup Utility does not depend on an operating system to run. You run the utility by typing the Del or Delete key before the operating system boots up. The CMOS Main screen will appear. You navigate the CMOS Setup Utility using keyboard commands that are listed at the bottom of each screen. Help is available at any time by pressing the F1 key.

Once you have fully configured the CMOS Setup Utility you will rarely if ever need to configure it again.

## Entering Setup

Each time the system is turned on, the BIOS performs Power-On Self Test (POST) routines. These routines run through a series of diagnostic checks. If an error occurs, it is reported in one of two ways:

1. A series of beeps, if the error is encountered before the display is initialized.
2. An error message is shown on the screen, if the display is initialized. After the POST routines are performed, the following message appears: “Press DEL to enter SETUP”

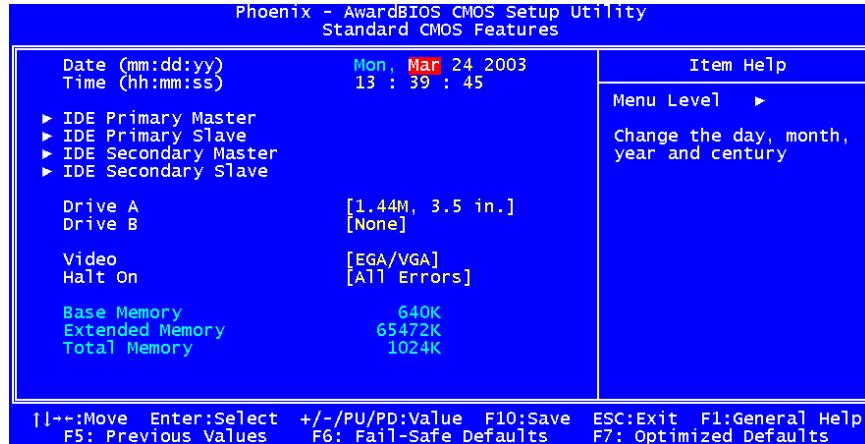
Press the <DEL> key to enter the Award BIOS Setup program, and the main screen appears:



Use the arrow keys to select items. A description of each selection follows.

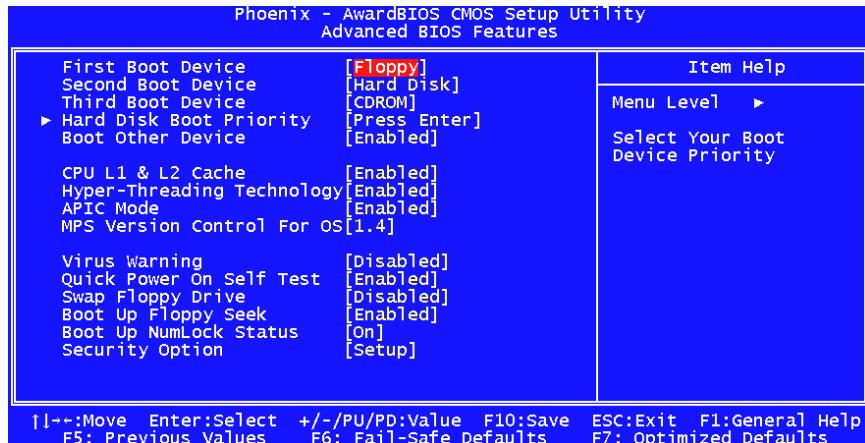
## Standard CMOS Features

The Standard CMOS Features screen lets you reset time and date settings to suit your location. The IDE devices are Auto Detected, but you can change these settings manually if necessary. The floppy drive settings and other settings are standard defaults that you can also change if necessary.



## Advanced BIOS Features

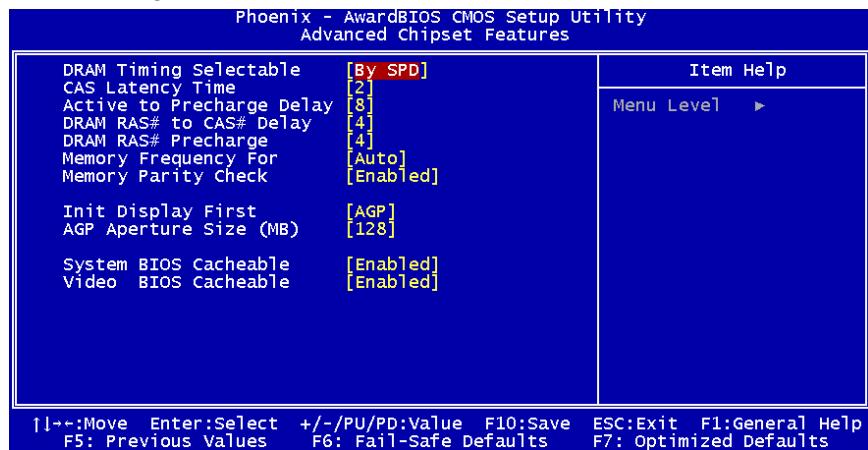
The Advanced BIOS Features screen configures boot options such as boot devices, boot order, various boot configurations and other power functions. Unless you fully understand the function of these settings, it is better to leave the default settings.



**Note1:** Please enable both the “Hyper-threading” and “APIC Mode” if you install a CPU with a speed higher than 3.06GB.

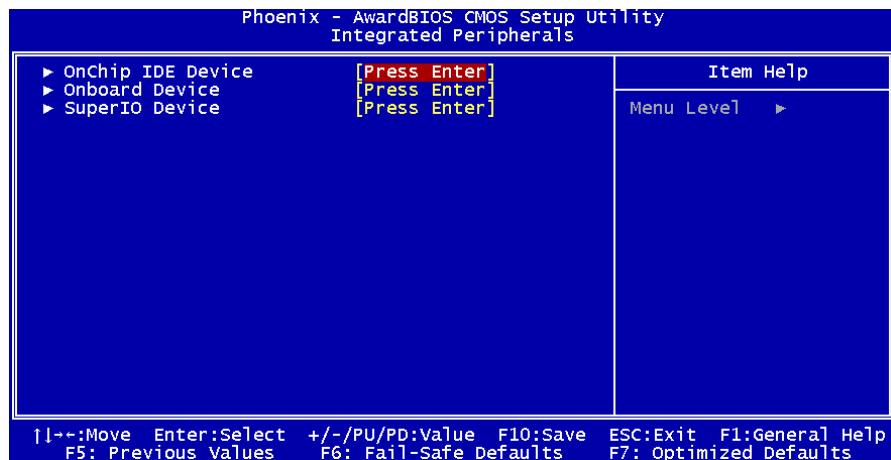
## Advanced Chipset Features

The Advanced Chipset Features screen configures the chipset, BIOS caching and the AGP. Unless you fully understand the function of these settings, it is recommended that you do not change the default settings.



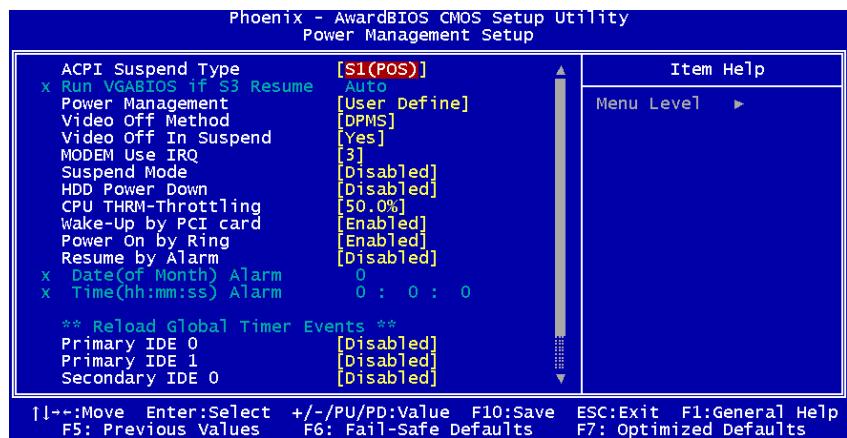
## Integrated Peripherals Screen

The Integrated Peripherals screen configures the peripheral features integrated onto the motherboard. The settings on this screen are all optimized defaults. The IDE settings are Auto Detected and the port settings are standard settings.



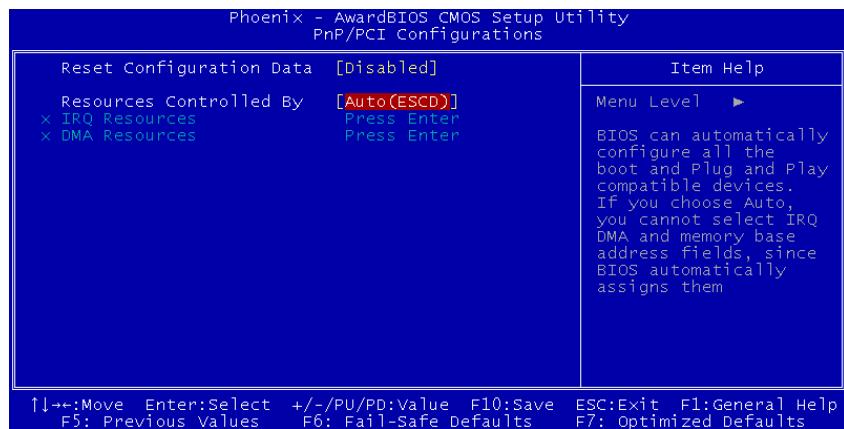
## Power Management Setup Screen

The Power Management Setup screen configures power management settings. The settings on this screen are all optimized defaults. Windows ACPI power management overrides most of these settings. There are Minimum and Maximum configurations available in addition to the User Defined defaults. In User Defined mode you can customize all settings.



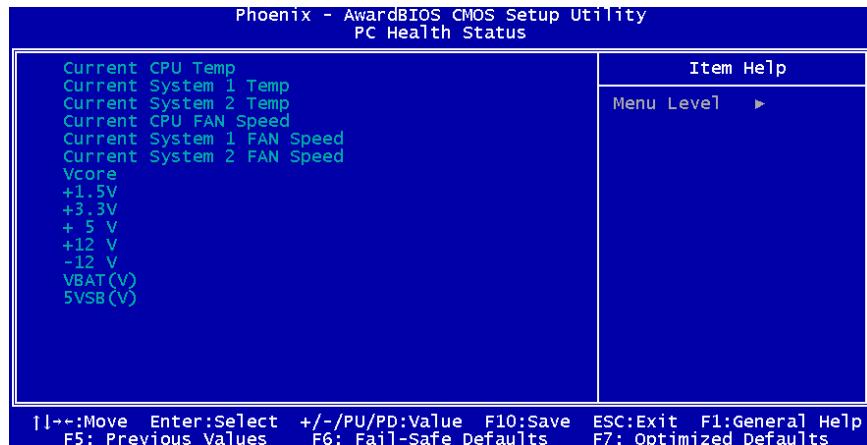
## PnP/PCI Configurations

The PnP/PCI Configurations screen configures Plug and Play and other PCI bus settings. The default is for BIOS control of these functions. Set Reset Configuration Data to Enabled if a problem occurs after installing an expansion card. This rewrites the ESCD.



## PC Health Status

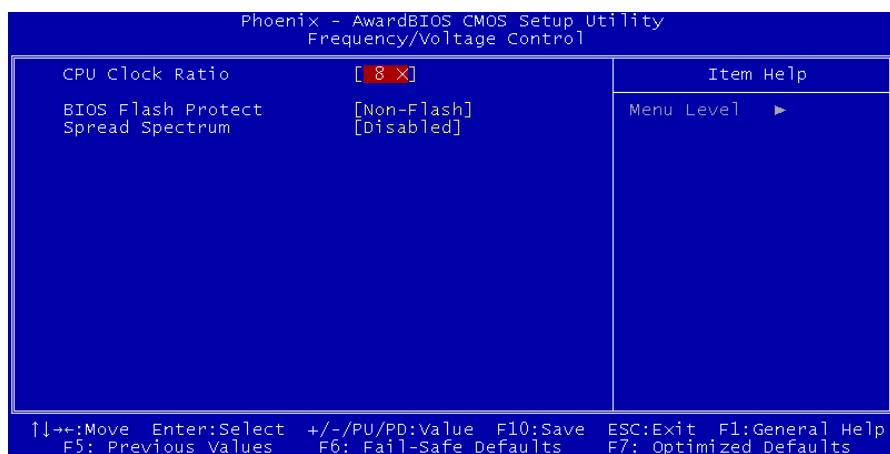
The PC Health Status screen displays system information such as CPU cooling fan speed and various voltage levels. This information is Auto Detected.



## Frequency/ Voltage Control

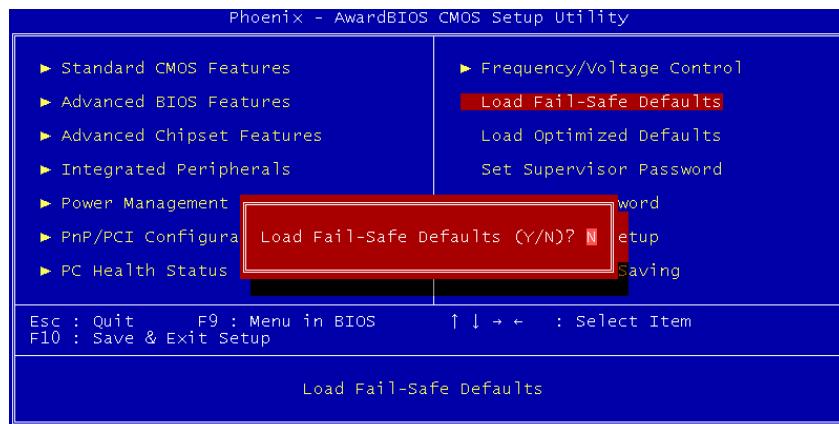
The Frequency/ Voltage Control screen configures CPU settings. Configuring CPU clock ratio settings that are different than Intel specifications can damage the Intel CPU and void the CPU warranty.

Enable the Spread Spectrum setting to reduce interference generated by the board circuitry.



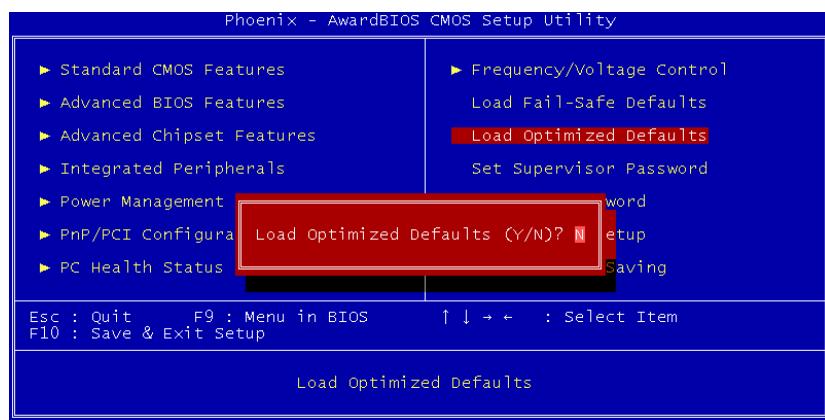
## Load Fail-Safe Defaults

Selecting “Y” for this item loads the minimum set of configuration settings. The Fail-Safe Defaults let the system start for troubleshooting of hardware problems.



## Load Optimized Defaults

Selecting “Y” after choosing this item loads the optimized set of default settings. Use these default settings if the configuration is corrupted or if a mistake is made in the configuration. You should also load these settings after performing the Clear CMOS procedure.



## Setting Supervisor/User Password

The Set Supervisor Password items let you set passwords for system access. The Supervisor password prevents access to the CMOS Setup utility.

Set a password as follows:

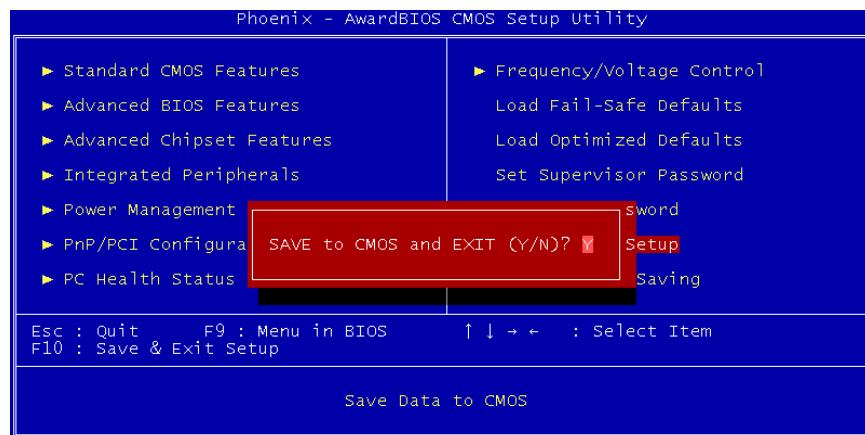
1. Choose either Set Supervisor Password item or the Set User Password item in the main screen and press Enter. A password dialog box appears.
2. To enter a new password type in the password using no more than eight characters or numbers and press Enter.
3. A dialog box asks you to confirm the new password by typing it in a second time. Type the password again and press Enter, or just press Enter if you are deleting a password. The password is then recorded. After bringing up the password dialog box you decide not to set a password, press the Enter key, not the Esc key, to exit the password dialog box.

Note: the password is case sensitive. To delete a password, press enter when the password dialog box appears and just press “Enter” from keyboard.



## Save & Exit Setup

Entering “Y” and pressing Enter saves the current utility configuration as a new record, exits the utility and restarts the system using the saved configuration record.



## Quit Without Saving

This item lets you exit the utility and restart the system without changing the saved configuration record.



## **5: Installing a support drivers and utilities**

The Power Installer CD-ROM disc comes with required hardware drivers for Microsoft Windows and some additional utility software. If you have installed a supported Microsoft OS, you must install the required drivers. If you have install Linux, you will need to create support disks using the “Make Driver utility”.

This motherboard requires that you install driver software to support the onboard hardware. You will need to install some or all of the following:

1. Main chipset support software  
Various drivers that support the chipset and enhance system performance.
2. Audio Driver  
Audio driver for the onboard AC'97 audio.
3. USB 2.0 Installation Guide  
Information on installing drivers for the onboard USB ports.
4. LAN driver software  
Information on installing drivers for the onboard Intel Gigabit Ethernet controller.

## **Installing Windows Drivers**

This section assumes you have installed one of the supported Microsoft Operating Systems on the system hard disk drive.

To install Windows drivers, insert the Power Installer II CD-ROM disc in the system's CD-ROM (or other optical drive) and wait for the Power Installer interface to automatically load. If it doesn't start, run the Power Installer interface directly from the disc by running Setup.

The Power Installer main screen will appear. Click on this motherboard's model number to open the section for this board. The "Driver and Utilities" screen will appear. Click on "Driver Installation" and the Driver Installation screen will appear.

## **Installing the Utility Software**

To install the utility software bundled on the Power Installer CD-ROM disc, click on "Software Utility" in the Drivers and Utilities screen to open the Software Utility window. To install the Adobe Acrobat reader or McAfee Anti-Virus software packages, click on the item you want to install and follow the install program's instructions.

## **Making Driver Discs**

You can make driver floppy disks by running the "Make Driver" utility from the Drivers and Utilities screen. Follow the screen interface, which is self-evident to make driver installation disks if needed.

## **Making & Installing Linux Drivers**

You can boot the system from the Power Installer disc. The system will boot from the Linux kernel on the disc and you can use the driver disk creator that loads to create Linux driver disks. You can then install these drivers according to the instructions for driver installation from your Linux distribution.

## **6: Specifications**

Technical specifications for the BC875PLG motherboard are listed below.

### **Processor**

Single processor for Intel 478 Pentium 4  
System Bus: 800/533MHz  
Support for Hyper-Threading Technology  
Auto detects CPU type, external clock and multiplier.

### **Chipset**

MCH : Intel 875P  
ICH5R  
Firmware Hub  
Winbond Super I/O : W83627HF

### **CPU Power**

Follows VRM 10.0 spec  
VRD design  
Supports Vcore output up to 78A

### **Memory**

Dual Channel PC3200/PC2700/PC2100 DDR SDRAM  
Supports 128MB/ 256MB/ 512MB up to 1GB memory capacity for each DIMM socket  
Supports maximum memory of up to 4GB  
Peak memory bandwidth of 6.4GB/s  
Two pair DIMMs (Four rows)  
Supports ECC memory  
Unbuffered DDR SDRAM

### **Graphics**

AGP Pro  
AGP 8X/4X at 1.5V only  
AGP 3.0 specification

## **PCI**

Six 32bit PCI/33MHz slots  
PCI 2.1/2.2 Compliant

## **ISA**

Winbond W83628F & W83629D PCI to ISA bridge controller  
One 16bit ISA slot

## **LAN**

On board Intel 82547EI GbE  
On board Intel 82562ET 10/100Mbps controller  
Two RJ-45 connector  
One Wake on LAN connector

## **USB 2.0**

Four USB 2.0 external port on the back panel (stacked) Two internal connectors support four USB2.0 ports for front panel

## **Serial ATA**

Two onboard SATA ports  
Support RAID level 0, 1 (RAID 1 driver will be ready Q3, 2003)

## **Audio**

AC'97 software Sound  
Realtek ALC650  
One audio connector at rear panel to support LINE IN/  
LINE OUT/MIC IN  
Rear, Center/Subwoofer on rear panel  
One 4-pin CD-ROM Audio In header  
One 4-pin AUX header

## **IEEE-1394**

TI TSB43AB22 design in  
Fully supports IEEE Std 1394a-2000  
Cable port data rate at 100Mbs, 200Mbs and 400Mbs  
One external port at rear panel, one internal connector for the IEEE-1394 bracket

## **General I/O**

Two IDE connectors (Bus Master with Enhanced) to support Ultra DMA 33/ATA66/ATA100  
IDE drives and ATAPI compliant devices  
One Floppy Controller for up to two drives  
Two UART connectors, one on the rear I/O panel, the other internal connector is on the board.  
One 25pin ECP/EPP Parallel Port  
One PS/2 Keyboard  
One PS/2 Mouse  
One internal WOL connector

## **BIOS**

Phoenix BIOS  
4Mb Flash ROM (FWH)  
Flash write Protection for BIOS  
Support ACPI S1, S3 and S4  
Auto configuration for IDE hard disk types  
Multiple boot options

## **System Management**

Winbond® hardware monitor  
One 3-pin CPU Fan header with fan speed detect  
Two 3-pin Chassis Fan headers with fan speed detect  
Three temperature sensors  
Eight Voltage monitoring (Vcore, +1.5V, +3.3V, +5V, +12V, -12V, Battery, 5VSTB)

## **Form Factor**

ATX Form Factor  
ATX 12V power connectors  
Stacked PS/2 Mouse/Keyboard ports; Stacked 4 USB2.0 and 10/100, GbE LAN ports  
Stacked one Serial, One IEEE1394, Rear, Center/Subwoofer connectors and one Parallel ports

## **Approvals**

FCC class B Product safety IEC60950, EN60950, CE mark 89/336/ECC(EMV) and acc. To EU

## **Miscellaneous**

Support AC power failure	SMBIOS 2.3
ACPI 1.1	BIOS boot Spec. 1.01
PC2001	WfM 2.0
APM 1.2	DMI 2.0